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REMARKS

Claims 1, 2, 6-13, 16-23, 25, 26, 28, 29, 31-33, 35-37 and 40 remain pending in this application. Of these claims, claims 1, 2 and 7-9 stand rejected under 35 USC §102(b) as being anticipated by Hassett. Claims 10, 11, 16-22, 29, 33, 35-37 and 40 stand rejected under 35 USC §103(a) as being unpatentable over Hassett in view of Smith et al. Claim 6 stands rejected under 35 USC §103(a) as being unpatentable over Hassett in view of Robinson et al. Claims 12, 13, 23, 25, 26, 28, 31 and 32 stand rejected under 35 USC §103(a) as being unpatentable over Hassett in view of Robinson et al. and Smith et al. Claim 40 has been objected to as being in improper dependent form.

In view of the preceding amendments and the following remarks, the above rejections and objection are traversed, and reconsideration of this application is respectfully requested.

By the above amendment, claim 40 has been amended to depend from claim 29. It is believed to be proper that this amendment be entered under 37 CFR 1.116 to put this application in better condition for allowance or appeal. It is therefore respectfully requested that the objection to dependent claim 40 be withdrawn.

Each of Applicant's independent claims 1, 10, 23 and 29 includes language directed to analyzing or monitoring a projected plume dispersion, if applicable, where the plume dispersion is calculated based on shipment data, geographic positioning data and near real-time weather data related to an emergency condition. The plume dispersion monitoring feature of Applicant's Invention is discussed extensively on pages 12 and 13 of the specification, and includes detecting noxious gases and particles

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released from a spill of the hazardous material, determining the degree of danger from the plume, determining the direction of dispersion of the plume, and determining the shape and dimension of the plume. Applicant respectfully submits that the combination of references relied on by the Examiner does not teach or suggest a system for managing a shipment of hazardous material that includes monitoring plume dispersion in the event of a leak of the material.

Independent claim 1 has been rejected under §102(b) as being anticipated by Hassett. The Examiner has suggested that column 5, lines 32-46 of Hassett teaches monitoring a plume dispersion based on shipment data, geographic positioning data and near real-time weather data. That section of Hassett is reproduced below.

Network 2 is preferably programmed with a general purpose waste management, notification and monitoring program that compiles and updates the tracking reports for each load as it progresses along its predesignated route, preferably checks the logged-in locations for compliance with the designated route, notes any unusual indications of load status apparent from the sensor outputs, discussed below, and, if necessary, initiates communications through the fixed base modules 4 to issue inquiries, warnings, instructions or route changes to the driver. For example, when a regional flood warning or weather-related danger or traffic impediment is predicted, shipments which have been identified as particularly dangerous may be suspended or re-routed around the affected area.

Applicant respectfully submits that nowhere in this section of Hassett does it discuss monitoring a plume dispersion from a leak of the hazardous material. Plume dispersion monitoring clearly includes monitoring the actual movement of the gases and particles that are released into the air as a result of a spill of the hazardous material. This section of Hassett only appears to discuss monitoring the actual shipment as the vehicle transporting the hazardous material moves along its route, and not a response

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to plume dispersion from a leak of the hazardous material. Other sections of Hassett do discuss responding to a leak or potential leak of the hazardous material, for example, column 6, lines 39-49, but none of these other sections appear to discuss monitoring the direction, size, shape, etc. of a plume from the material dispersed into the air.

Moreover, it is believed that the Examiner recognizes that Hassett does not teach this feature of Applicant's invention. For example, the third paragraph on page 5 of the Office action states:

Hassett does not disclose a system wherein monitoring the shipment includes providing projected plume dispersion if applicable, in response to the emergency condition, wherein the plume dispersion is calculated based on shipment data, geographic positioning data and near real-time weather data specific to the emergency condition and physical location of the goods.

This paragraph in the Office action includes nearly the exact language found in independent claim 1 directed to the plume dispersion monitoring feature of the invention. Therefore, Applicant respectfully submits that Hassett et al. clearly does not anticipate independent claim 1 for at least the reason that it does not disclose plume dispersion monitoring as particularly set forth in that claim. Thus, Applicant respectfully submits that the final rejection should be withdrawn.

Further, Applicant submits that the combination of Hassett and Smith et al. does not make obvious the plume dispersion monitoring feature of Applicant's invention in a system for managing a shipment of hazardous materials. The Examiner has stated on page 2 of the Office action that Applicant's previous arguments for this position are not persuasive because Applicant has argued that Hassett fails to include the limitations of Smith et al. and Smith et al. fails to include the limitations of Hassett et al. Applicant

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respectfully submits that this is a mis-characterization of Applicant's arguments.

Applicant recognizes that Hassett teaches a hazardous waste transport management system and Smith et al. teaches a portable emergency action system for chemical releases. What Applicant is arguing is that it is improper to combine the teachings of Hassett and Smith et al. under 35 USC §103 to hold Applicant's claimed invention obvious. Particularly, there is no motivation or suggestion in either Hassett or Smith et al. that would lead one of ordinary skill in the art to include plumed dispersion monitoring in a hazardous waste transport management system that includes the several other features recited in Applicant's independent claims. These other features include identifying a proposed route based on a risk analysis, including an optimal shipment route, determining an emergency condition and providing an emergency response as stated in independent claim 1; determining optimal and alternate routes, obtaining geographic positioning data to select weather data, calculating a recommended response to a detected emergency condition and notifying database defined emergency response authorities as stated in independent claim 10; determining optimal and alternate routes and a proposed route based on a risk analysis that consists of an impedance type module and sensing an emergency condition as stated in independent claim 23; and determining an optimal route based on the relevant static and dynamic considerations as stated in independent claim 29.

MPEP 2143 sets out the requirements of establishing a *prima facie* case of obviousness under §103(a). That section states, "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference

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teachings.\* Applicant respectfully submits that neither Hassett nor Smith et al. provide a suggestion or motivation to include a plume dispersion monitoring technique in a hazardous waste management system that also includes the various other features recited in Applicant's independent claims. Therefore, Applicant respectfully submits the Examiner has improperly combined Hassett and Smith et al. under the requirements of §103.

MPEP 2143.01 talks about the requirements for a suggestion or motivation to modify references under §103. That section states, "the combination of the references taught every element of the claimed invention, however, without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper." Further, "[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art." Also, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." Additionally, "[a] statement that modifications of the prior art to meet the claimed invention would have been 'well within the ordinary skill of the art at the time the claimed invention was made' because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references."

The Examiner has stated on page 2 of the Office action that the Examiner has

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cited support in both Smith et al. and Hassett that would lead one of ordinary skill in the art at the time of the invention to make each respective combination. With respect to the plumed dispersion feature, the Examiner offers the following analysis from page 6 of the Office action to provide the motivation to combine.

Hassett further discloses that a method of electronically marking, identifying, and managing hazardous cargo and vehicles could decrease the risk to the general public and might cost-effectively provide information enroute that would enhance safety measures for emergency personnel called to handle an accidental rupture of a hazardous material container (col. 1, lines 55-61).

Smith et al. further discloses that inevitably in production, transportation, storage and use of chemicals accidents occur that can endanger human, animal, and aquatic life and property (col. 1, lines 24-28). Smith et al. further discloses that some of the chemicals that endanger life are dispersed in plumes and because some chemicals generate plumes while others do not, it has become necessary for response personnel to be able to quickly identify harmful chemicals and develop a protective action zone based on various meteorological and physical conditions surrounding the site, which is especially important where the evacuation of human life might be important but also expensive (col. 1, lines 29-61).

It would therefore be obvious to one skilled in the art at the time of the invention to modify Hassett in view of Smith et al. in order to provide for a more comprehensive method of hazardous materials management that maximizes cost-efficiency without compromising safety to humans, animals and the surrounding environment.

Applicant respectfully submits that these teachings in Hassett and Smith et al. do not lead to a proper combination of these references under §103. Applicant recognizes that the Hassett system is intended to enhance safety measures for emergency personnel to handle an accidental rupture of a hazardous material container. Further, Applicant recognizes that Smith et al. discloses that dangerous chemicals are produced,

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transported and stored, and that dispersion of these chemicals may be hazardous to the environment. However, what Hassett or Smith et al. do not disclose or teach is that a system and method for managing a shipment of hazardous material that monitors the shipment of the hazardous materials in real-time, also can include plume dispersion detection and monitoring in the event that the shipment releases a plume into the environment. In other words, Applicant respectfully submits that Hassett and Smith et al. fail to provide the required motivational teaching to combine plume dispersion monitoring in the event of an accident with a system that monitors the progress and movement of a hazardous material shipment as it is occurring.

The Hassett system monitors the shipment as it is being transported, but does not provide for plume dispersion monitoring in the event of a leak. The Smith et al. system monitors a plume dispersion after a leak, but does not teach that the plume monitoring occurs as a result of managing the shipment during transport of the material. Neither reference teaches nor suggests that these two things can be combined or how they would be combined. Just because these things can be combined does not mean that they may be under a proper §103 analysis. The required motivation or suggestion to combine is missing from the teachings in these references.

Applicant respectfully submits that the Examiner has not made a *prima facie* case of obviousness. The combination of Hassett and Smith et al. does not provide the teaching, suggestion or motivation to make the combination as suggested by the Examiner. Therefore, Applicant respectfully requests that the §103(a) rejections be withdrawn.

Robinson et al., also relied on by the Examiner, teaches a system for determining

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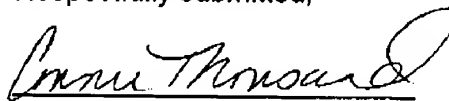
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an optimal route for a vehicle based on environmental conditions. Robinson et al. does not teach or suggest monitoring a plume from a hazardous material leak, and thus fails to provide the teaching missing from Hassett to make Applicant's claimed invention obvious.

It is now believed that this application is in condition for allowance. If the Examiner believes that personal contact with Applicant's representative would expedite prosecution of this application, he is invited to call the undersigned.

Respectfully submitted,

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**ATTACHMENT FOR CLAIM AMENDMENTS  
VERSION WITH MARKINGS TO SHOW CHANGES MADE  
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40. (Amended) The system of Claim [39] 29 wherein prediction of the emergency condition is transmitted to users.